

MILITARY SPECIFICATION

CLOTH, KNITTED, WOOL

1. SCOPE

- \* 1.1 This specification covers the requirements for one type knitted wool fabric.

2. APPLICABLE DOCUMENTS

- \* 2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein

SPECIFICATIONS

Federal

PPP-P-1132

Packaging And Packing Of Woolen,  
Worsted And Wool Blend (Synthetic  
Fiber, Cotton) Fabrics

Military

MIL-C-43665

Cloth Wool Mothproofing Treatment Of

STANDARDS

Federal

FED-STD-101

Textile Test Methods

Military

MIL-STD-105

Sampling Procedures And Table For  
Inspection By Attributes

MIL-STD-1491

Glossary of Knitting Imperfections

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

- \* 2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

MIL-C-363A(USAF)

U S Department of Agriculture

Methods of Test for Grade of Wool

(Application for copies should be addressed to the U.S. Department of Agriculture, Agriculture Marketing Service, Washington D.C. 20402 )

Rules and Regulations Under the Wool Products Labeling Act of 1939

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington D.C. 20402 )

3. REQUIREMENTS

- \* 3.1 Standard sample. The finished cloth shall match the standard sample for shade and shall be equal to or better than the standard sample with respect to all characteristics for which the standard sample is referenced (see 6.3)
- \* 3.2 First article approval Unless otherwise specified (see 6.2), before production is commenced, 3-1/2 continuous yards full width of the finished cloth shall be submitted to or made ready for the contracting officer or his authorized representative for inspection as specified in 4.2. The approval of the first article authorizes the commencement of production but does not relieve the supplier of the responsibility for compliance with all applicable provisions of this specification. The first article shall be manufactured by the supplier in the same facilities to be used for the manufacture of the production items.
- \* 3.3 Materials.
  - \* 3.3.1 Wool The wool shall be fleece or pulled wool, or any combination thereof, not lower in grade than 56's U.S. Department of Agriculture standard. The use of noils, card fly, card strippings, reused or reprocessed wool is prohibited. Garnets of any kind are prohibited.
  - \* 3.3.1.1 Wool content The finished knitted cloth shall contain not less than 95 percent wool based on the dry weight of the specimen when tested as specified in 4.4.
  - \* 3.3.2 Wool The wool shall be well carded and evenly spun on the woolen system into a single yarn.
- \* 3.4 Color. The color shall be sage green UFAF color no. 1525 and shall match the standard sample (see 6.3).
  - \* 3.4.1 Matching. The color of the finished cloth shall match the standard sample under natural (North Sky) daylight or artificial daylight having a color temperature of 7500° Kelvin and shall be a good approximation to the standard sample under incandescent lamplight of 2800° Kelvin.
  - \* 3.4.2 Colorfastness. The finished cloth shall show fastness to wet drycleaning, perspiration, and crocking equal to or better than the standard sample. When a standard sample is not available, the finished cloth shall show good fastness to wet drycleaning, perspiration, and crocking. A Munsell Value for crocking shall not be lower than 8.5 when tested as specified in 4.4.

- \* 3.4.3 Mothproofing. In the dyeing operation, the stock, top or cloth, when piece dyeing is permitted, shall be mothproofed in accordance with MIL-C-43665.
- \* 3.5 Physical requirements. The finished cloth shall conform to the physical requirements specified in Table I when tested as specified in 4.4

TABLE I. PHYSICAL REQUIREMENTS

Width (Excluding Selvage, Inches Minimum)	Weight (Based on Linear Yd of 54 In) Ounces (Minimum)	Wales Per Inch Minimum	Courses Per Inch Minimum	Minimum Bursting Strength (lbs)	Shrinkage (Maximum) Length	Thickness (Inches)	Shrinkage Width
54	22.5	15	17	60	5.0 percent	0.1 psi (min)  1.1 psi (max)	To not less than 54 inches

- \* 3.5.1 Knitting. The fabric shall be either warp or circular (tubular) knit to the requirements of this specification. Circular (tubular) knit shall be slit prior to napping.
- \* 3.6 Finish. The finished material shall be free from vegetable matter (carbonized if necessary) sufficiently fulled and napped to produce a degree of finish equal to the standard sample. The cloth shall be napped on both sides. The napping process may be started either wet or dry. The use of a single acting napper shall be limited to the breaker operation. The use of finishing or loading materials to increase the weight or bursting strength will not be permitted. The character of nap shall be such as will cause the napped fibers to offer resistance to lifting with a needle equal to or better than the standard sample.
- \* 3.6.1 pH. The pH value of the water extract of the finished cloth shall not be lower than 4.0 or higher than 8.0 when tested as specified in 4.4.
- \* 3.7 Length and put up. Unless otherwise specified (see 6.2), the cloth shall be furnished in continuous lengths, each not less than 50 yards. Each length shall be put up in a full width roll as specified in PPP-P-1132.
- \* 3.8 Labels. Cloth manufactured under the specification shall be labeled in accordance with the Wool Products Labeling Act of 1939.
- \* 3.9 Workmanship. The finished cloth shall conform to the quality established by this specification. The demerit points per 100 square yards when calculated as specified in Section 4 shall not exceed the established maximum point value.

4. QUALITY ASSURANCE PROVISIONS

- \* 4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.
- \* 4.1.1 Certificate of compliance. Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.
- \* 4.2 Inspection. Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.
- \* 4.2.1 Component and material inspection In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase document.
- \* 4.2.1.1 Wool. The wool shall be visually examined for grade (see 3.3.1) in the scoured form (prior to picking, carding or dyeing) by comparison with the applicable U.S. Standard. In the event of dispute, resulting from this comparison, the wool grade shall be determined by a width method (wedge). The examination for grade shall be performed on a composite sample of one pound of scoured wool for each 10,000 pounds or fraction thereof in the lot. The composite sample shall be selected from not less than 10 percent of the bales or bags in the lot. The lot shall be unacceptable if the sample does not conform to the requirements of 3.3.1.
- \* 4.2.2 Inprocess inspection. Inspection shall be made at any point during any phase of the manufacturing process to assure that only approved wools are used (see 3.3.1) and that the dyeing requirements have been adhered to (see 3.4). The Government reserves the right to exclude from consideration for acceptance any material for which inprocess inspection has indicated nonconformance.
- \* 4.2.3 Examination of the end item. Examination of the end item shall be in accordance with 4.2.3.1 through 4.2.3.3.
- \* 4.2.3.1 Yard-by-yard examination. Each roll in the sample shall be examined on the face side (however the side shall be alternated on every other roll). The yardage examined shall be in consecutive order. When the total yardage in the roll does not exceed 100 yards, the entire yardage in the roll shall be examined. When the total yardage in the roll exceeds 100 yards, only 100 yards shall be examined.

\* 4.2.3 1.1 Sample size.

<u>Lot Size (Yards)</u>	<u>Sample Size (Rolls) 1/</u>
3200 or less	9
3201 up to and including 10,000	13
10,001 and over	20

1/ no more than one roll shall be taken from any shipping container unless the number of shipping containers in the lot is less than the required number of rolls.

- \* 4.2.3.1.2 Defect scoring. All defects, as defined in MIL-STD-1491, which are clearly noticeable at normal inspection distance (3 feet) shall be scored and assigned demerit points, as listed in 4.2.3.1.3. Defects on the selvage shall not be scored unless the body of the cloth is affected. No linear yard (increments of 1 yard on the measuring device of the inspection machine) from any one roll within the sample shall be penalized more than 4 points. The lot shall be unacceptable if the points per 100 square yards of two or more individual rolls exceed 15.0 points. If the lot fails, a second sample shall be taken from a different roll. The lot shall be unacceptable if one or more rolls in the second sample exceed 15.0 points per 100 square yards. Point computation for lot quality and individual roll quality shall be as follows.

$$\frac{\text{Total points scored in sample} \times 3600}{\text{Contracted width of cloth (inches)} \times \text{Total yards inspected}} = \text{Points per 100 square yards}$$

- \* 4.2.3 1.3 Demerit points. Demerit points shall be assigned as follows

For defects 3 inches or less in any dimension	- one point
For defects exceeding 3 inches, but not exceeding 6 inches in any dimension	- two points
For defects exceeding 6 inches, but not exceeding 9 inches in any dimension	- three points
For defects exceeding 9 inches in any dimension	- four points

The following defects, when present, shall be scored four points for each yard in which they occur:

Degree and character of finish on the face, the back, or both sides, not equal to standard sample  
Width less than specified.

- \* 4.2.3.2 Examination for length.

- \* 4.2.3.2.1 Individual rolls. During the yard-by-yard examination, each roll in the sample shall be examined for length. Any length found to be less than the minimum specified or more than two yards less than the length marked on the ticket shall be considered a defect with respect to length. The lot shall be unacceptable if two or more rolls in the sample are defective in respect to length.

- \* 4.2 3 2 2 Total yardage in sample. The lot shall be unacceptable if the total of the actual lengths of rolls in the sample is less than the total of the lengths marked on the roll tickets. The rolls examined shall be those selected for the examination of individual rolls.
- \* 4.2 3 3 Examination for compliance with Wool Products Labeling Act. During the yard-by-yard examination, each roll in the sample shall be examined for conformance to the Wool Products Labeling Act. Each roll not labeled in accordance with this act shall be a defect. The lot shall be unacceptable if two or more of these defects occur.
- \* 4.3 Examination of preparation for delivery requirements. Examination shall be made in accordance with the provisions of FPP-P-1132 to determine that packaging, packing and marking requirements of Section 5 of this specification are complied with.
- \* 4.4 Tests. The methods of testing specified in FED-STD-191, wherever applicable, and as listed in Table II shall be followed. The physical and chemical values specified in Section 3 apply to the results of the determinations made on a sample unit for test purposes as specified in the applicable test methods. The sample unit shall be 3-1/2 yards full width of the finished cloth. The lot shall be unacceptable if one or more sample units fail to meet any requirement specified. The lot size shall be expressed in units of 1 yard. All test reports shall contain the individual values utilized in expressing the final result. The sample size (number of sample units) shall be in accordance with the following

<u>Lot Size (Yards)</u>	<u>Sample Size</u>
800 or less	2
801 up to and including 22,000	3
22,001 and over	5

## 5 PREPARATION FOR DELIVERY

- \* 5.1 Packaging. Packaging shall be level A or C as specified (see 6.2)
- \* 5.1.1 Levels A and C The cloth, put up as specified, shall be packaged in accordance with the applicable requirements of FPP-P-1132
- \* 5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).
- \* 5.2.1 Levels A, B and C The cloth shall be packed in accordance with the applicable requirements of FPP-P-1132.
- \* 5.3 Marking. In addition to any special marking required in the contract or order, shipments shall be marked in accordance with the requirements of FPP-P-1132.

## 6. NOTES

- \* 6.1 Intended use The cloth is intended for use as linings for cold weather clothing.

TABLE II. TEST METHODS

Characteristic	Requirement Paragraph	Test Method
Yarn ply-single	3 3.2	Visual <u>1/</u>
Colorfastness to Perspiration	3 4.2	5680
Wet drycleaning	3.4.2	5622
Crocking	3.4.2	5651
Weight	3.5	5041
Yarns per inch		
Wales	3.5	5070
Courses	3.5	5070
Thickness	3.5	5030
Breaking strength	3 5	5120
Shrinkage	3 5	5580
Acidity (pH)	3 6.1	2811
Fiber content (finished cloth)	3.3.1	2101

1/ One determination per sample unit and the result reported as "pass" or "fail."

- \* 6.2 Ordering data. Procurement documents should specify the following
  - a. Title, number and date of this specification
  - b. when first article sample is not required (see 3.2)
  - c. Length, if other than specified (see 3.7)
  - d. Levels of packaging and packing required (see 5.1 and 5.2)
- \* 6.3 Standard sample. For access to standard sample, address the procuring activity issuing the invitation for bids.
- \* 6.4 The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue

HIL-C-363A(USAF)

Custodian  
Air Force - 82

Review Activity  
Air Force - 82

Preparing Activity  
Air Force - 82

Project No 8305-F200



SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No 22-R255
<b>INSTRUCTIONS</b> This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.		
SPECIFICATION		
ORGANIZATION		
CITY AND STATE	CONTRACT NUMBER	
MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT		
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A. GIVE PARAGRAPH NUMBER AND WORDING		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES		
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE SPECIFICATION RESTRICTIVE? <input type="checkbox"/> YES <input type="checkbox"/> NO (If "yes", in what way?)		
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)		
SUBMITTED BY (Printed or typed name and activity - Optional)		DATE

DD FORM 1426  
1 JAN 66

REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.

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